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Find the *Princeton Instruments TEA/CCD-512-TKM/1* at our website: *Click HERE*

CCD Cameras

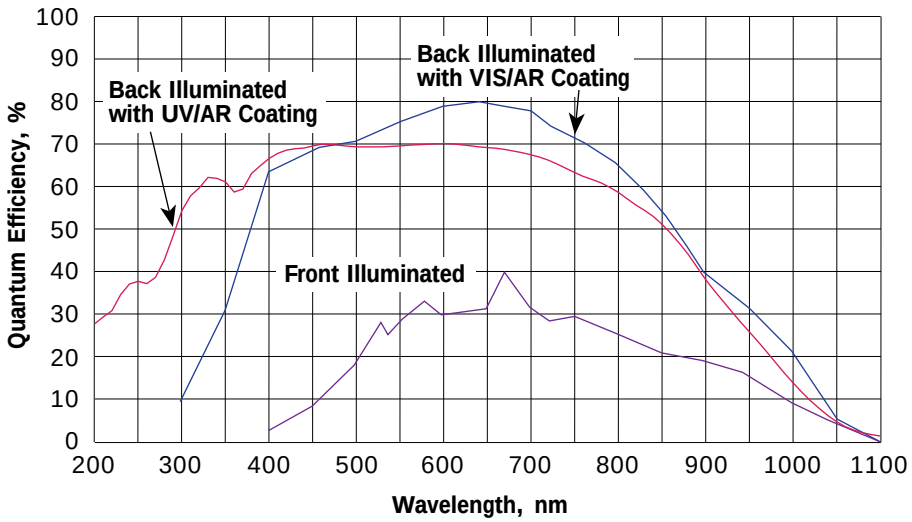
based on SITe 512 × 512 CCD, front or back illum.

TE/CCD-512SF&SB
LN/CCD-512SF&SB

These cameras are ideal for light starved, long integration applications such as astronomy, where high quantum efficiency is a must. Permanent coatings extend the range of the camera into the UV, still with the highest QE of any camera in this wavelength range.

When comparing slow scan CCD cameras, these are noted for the following features.

- ❑ Large pixels (24 µm), front or back illuminated, maximum light collection
- ❑ MPP operation for low dark charge
- ❑ Square format, 512 x 512
- ❑ Exceptionally high quantum efficiency (back illuminated)
- ❑ High dynamic range (16 bits)
- ❑ Moderate cost, compared to 1K × 1K



Performance Characteristics

CCD Arrays:	SITe (formerly Tektronix) model SI502FA (front illuminated) or SI502BA (back illuminated), MPP only
Format:	512 x 512; 12.3 x 12.3 mm overall; 24 x 24 µm pixels
Full Well Capacity:	Standard array image section, 300,000-350,000 electrons; horizontal shift register, 750,000 electrons; preamp node, 900,000 electrons
Readout Noise:	4-7 electrons at 50 kHz; 18-21 electrons at 1 MHz
Spectral Range:	512SF, 400-1080 nm, 190-1080 nm with UV-to-visible converter; 512SB, 260-1080 nm, 190-1080 nm with UV-to-visible converter
Dynamic Range:	14-17 bits
Response Nonlinearity:	< 1.5% for 16 bits; < 2.5% for 17 bits
Response Nonuniformity:	≤ ±4% over entire CCD area, except blemish regions
Blemish Definitions:	Point defect, a pixel with significantly more or significantly less signal than adjacent pixels; Cluster defect, a grouping of adjacent point defects; Column defect, a grouping of point defects along a single column; Dark defects (point, cluster, or column), >50% reduction in response relative to adjacent pixels; Hot defects (point, cluster, or column), dark current >10× the maximum allowable average dark current.
Blemish Specifications:	10 or fewer point defects, no partial or full column defects; Except column 512 may not meet full specifications Lower cost, SITe grade 1 CCDs are also available, please consult the factory for details
Operating Temperature:	TE/CCD, -40°C with air circulation, -60°C with coolant circulation, -30°C with air circulation and nitrogen backfill; LN/CCD, -80°C to -140°C
Thermostating Precision:	±0.040°C over entire temperature range
Typical Dark Charge:	512SF, < 1 electrons/pixel-second at -50°C; LN/CCD at -120°C, < 0.6 electron/pixel-hour; Somewhat higher levels may be experienced with the UV/AR coating
Scan Rate:	TE/CCD, up to 1 MHz; LN/CCD maximum scan rate is 100 to 150 kHz
Full Frame Readout:	512SF, 0.29 seconds at 1 MHz; 512SB, 0.5 seconds at 1 MHz
Liquid Nitrogen Hold Time:	> 10 hours for standard dewar; > 25 hours for large capacity dewar

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